WHAT IS CLAIMED IS:

1. A method of coding image data, comprising:

separating frames included in image data into a key frame and an intermediate frame;

computing a matching between the key frames thus separated;

generating a virtual intermediate frame based on the matching; and

encoding an actual intermediate frame included in the image data based on the virtual intermediate frame.

2. A method as recited in Claim 1, wherein said computing process includes computing the matching, in a per-pixel manner, between the key frames, and said generating process includes performing an interpolation computation per pixel based on correspondence of a pixel position and intensity between the key frames so as to generate the virtual intermediate frame.

3. A method as recited in Claim 1, wherein said encoding process includes encoding a difference of the virtual intermediate frame and the actual intermediate frame.

4. A method as recited in Claim 1, further including outputting, as encoded data for the image data, a

combination of key frame data and data obtained in said encoding process.

5. A recording medium which stores a program executable by a computer, the program comprising the functions of:

separating frames included in image data into a key frame and an intermediate frame;

computing a matching between the key frames thus separated;

generating a virtual intermediate frame based on the matching; and

encoding an actual intermediate frame included in the image data based on the virtual intermediate frame.

6. An image data coding apparatus, comprising:

a unit which acquires image data including a plurality of frames;

a unit which separates the frames included in the image data into a key frame and an intermediate frame;

a unit which inputs the key frames thus separated and computes a matching between the inputted key frames;

a unit which generates a virtual intermediate frame based on the matching computed; and

a unit which encodes an actual intermediate frame thus separated, based on the virtual intermediate frame.

7. An image data coding apparatus as recited in Claim 6, wherein said separating unit includes a key frame detecting unit which detects the key frame among a plurality of image frames, one whose image difference from an immediately prior frame is relatively large.

8. An image data coding apparatus as recited in Claim 7, wherein said key frame detecting unit selects an image frame at constant intervals.

9. An image data coding apparatus as recited in Claim 6, wherein said encoding unit encodes a difference between the virtual intermediate frame and the actual intermediate frame.

10. An image data coding apparatus as recited in Claim 6, wherein said matching computing unit performs a per-pixel matching between the key frames.

11. An image data coding apparatus as recited in Claim 10, wherein said generating unit interpolates in-between pixels of the key frames based on the per-pixel matching, so as to generate the virtual intermediate.

12. An image data coding apparatus as recited in Claim 10, wherein said generating unit interpolates in-between blocks

of the key frames based on the per-block matching, so as to generate the virtual intermediate, the block being composed of a plurality of pixels.

13. An image data coding apparatus as recited in Claim 6, wherein said generating unit performs an interpolation calculation per pixel based on correspondence of position and intensity of a pixel between the key frames, so as to generate the virtual intermediate frame.

14. An image data coding apparatus as recited in Claim 6, wherein said generating unit performs an interpolation calculation per block based on correspondence of position and intensity of a block between the key frames, so as to generate the virtual intermediate frame, the block being composed of a plurality of pixels.

15. An image data coding apparatus as recited in Claim 6, further comprising a unit which combines data of the key frame and outputted data of said encoding unit, and which outputs the combined data as encoded data for the image data.

16. An image data coding apparatus as recited in Claim 6, further comprising a unit which provides a key frame anew in the vicinity of a certain intermediate frame or an

interval between two key frames when an error relating to the certain intermediate frame exceeds an allowable value, the error being assumed between encoded image data and original image data.

17. A method of decoding image data, comprising:

separating key frames of the image data included in encoded data of the image data, from other supplementary data;

generating a virtual intermediate frame based on computing a matching between the key frames thus separated; and

decoding an actual intermediate frame based on the virtual intermediate frame and the supplementary data.

18. A method as recited in Claim 17, wherein the supplementary data include data generated based on a difference between the actual intermediate frame and the virtual intermediate frame.

19. A method as recited in Claim 18, wherein said decoding process is such that the actual intermediate frame is decoded by adding decoded data of data generated based on the virtual intermediate frame and the difference.

20. A method as recited in Claim 17, further comprising

outputting as decoded data of the image data a combination of data of the key frame and data of the actual intermediate frame.

21. A recording medium which stores a program executable by a computer, the program comprising the functions of:

separating key frames of image data included in encoded data of image data, from other supplementary data;

generating a virtual intermediate frame based on computing a matching between the key frames thus separated; and

decoding an actual intermediate frame based on the virtual intermediate frame and the supplementary data.

22. An image data decoding apparatus, comprising:

a unit which acquires encoded data of image data;

a unit which separates key frames of the image data included in the encoded data, from other supplementary data;

a unit which computes a matching between the key frames separated in said separating unit;

a unit which generates a virtual intermediate frame based on the matching computed in said computing unit; and

a unit which decodes an actual intermediate frame based on the virtual intermediate frame and the other supplementary data.

23. An image data decoding apparatus as recited in Claim 22, wherein the supplementary data include data generated based on a difference between the actual intermediate frame and the virtual intermediate frame.

24. An image data decoding apparatus as recited in Claim 23, wherein said decoding unit decodes the actual intermediate frame by adding the virtual intermediate frame to the data generated based on the difference.

25. An image data decoding apparatus as recited in Claim 22, further comprising a unit which outputs as decoded data of the image data a combination of data of the key frame and data of the actual intermediate frame.

26. A data structure readable by a computer, comprising:

an index region which identifies image data;

a key frame region which stores data of a key frame included in the image data; and

an intermediate frame region which stores data related to an intermediate frame generated based on a computed matching between key frames stored in said key frame region,

wherein data in said regions are associated as encoded data of the image data.

27. A data structure as recited in Claim 26, wherein said intermediate frame region stores data of an actual intermediate frame included in the image data which are encoded based on a virtual intermediate frame generated based on the computed matching between the key frames.

28. A method of coding image data, comprising:

separating frames included in image data into a key frame and an intermediate frame;

generating a series of source hierarchical images of different resolutions by operating a multiresolutional critical point filter on a first key frame obtained by said separating process;

generating a series of destination hierarchical images of different resolutions by operating the multiresolutional critical point filter on a second key frame obtained by said separating process;

computing a matching of the source hierarchical images and the destination hierarchical images among a resolutional level hierarchy;

generating a virtual intermediate frame based on the matching computed; and

encoding an actual intermediate frame included in the image data, based on the virtual intermediate frame.

29. An image data coding apparatus, comprising:

a unit which acquires image data including a plurality of frames;

a unit which separates the frames included in the image data into a key frame and an intermediate frame;

a unit which inputs the key frames thus separated and computes a matching between the inputted key frames;

a unit which generates a virtual intermediate frame based on the matching computed; and

a unit which encodes an actual intermediate frame thus separated, based on the virtual intermediate frame,

wherein said matching computing unit generates a series of source hierarchical images of different resolutions by operating a multiresolutional critical point filter on a first key frame obtained by said separating unit, generates a series of destination hierarchical images of different resolutions by operating the multiresolutional critical point filter on a second key frame obtained by said separating unit, and computes a matching of the source hierarchical images and the destination hierarchical images among a resolutional level hierarchy.

30. A method of coding image data, comprising:

acquiring a virtual intermediate frame generated based on a result of a process performed between key frames included in the image data; and

encoding an actual intermediate frame included in the image data, based on the virtual intermediate frame.

31. An image data coding apparatus, comprising:

a first functional block which acquires a virtual intermediate frame generated based on a result of a process performed between key frames included in image data; and

a second functional block which encodes an actual intermediate frame included in the image data, based on the virtual intermediate frame.

32. A method of decoding image data, comprising:

acquiring a virtual intermediate frame generated based on a result of a process performed between key frames obtained by separating the key frames from supplementary data included in encoded data of the image data; and

decoding an actual intermediate frame based on the virtual intermediate frame and the supplementary data.

33. An image data decoding apparatus, comprising:

a first functional block which acquires a virtual intermediate frame generated based on a result of a process performed between key frames obtained by separating the key frames from supplementary data included in encoded data of image data; and

a second functional block which decodes an actual

intermediate frame based on the virtual intermediate frame and the supplementary data.